

REMARKS

By amendments made herein, all of Applicants' pending claims are method claims directed to electrolytically depositing copper onto a semiconductor microchip wafer substrate having microvias or trenches using an electroplating composition that comprises one or more brightener compounds that are present in a concentration of at least about 1.5 mg per liter of the electroplating composition, and wherein one or more brightener compounds comprise one or more sulfonopropyl disulfide compounds.

Claims 124, 137-139, 154-156 and 158 have been amended, and claims 140 and 157 have been cancelled without prejudice, and claims 154-167 have been added. No new matter has been added by virtue of the new claims. For instance, support for the amendments appears e.g. at page 10, line 12 and the original claims of the application.

Claims 124-132 and 134-136 were rejected under 35 U.S.C. 103 over newly cited Beach (U.S. Patent 4,334,966) in view of Dubin et al. (U.S. Patent 5,972,192).

Claims 137-139, 141-156 and 158-159 were rejected under 35 U.S.C. 103 over newly cited Beach (U.S. Patent 4,334,966) in view of Dubin et al. (U.S. Patent 5,972,192) and further in view of Dahms et al. (U.S. Patent 3,778,357).

For the sake of brevity, the above two Section 103 rejections are addressed in combination. Such a combined response is considered appropriate because, *inter alia*, each rejection relies the newly cited Beach document as a primary citation.

While Applicants fully disagree with the rejections, independent claims 124, 137, and 154 have been amended to recite subject matter of former claim 140, which former claim was not rejected over the above documents.

In view thereof, reconsideration and withdrawal of the rejections are requested.

Claims 137, 140-154 and 157-167 were rejected under 35 U.S.C. 103 over newly cited Beach (U.S. Patent 4,334,966) in view of Dubin et al. (U.S. Patent 5,972,192) and further in view of Bernards et al. (U.S. Patent 5,051,154). The rejection is traversed.

The skilled would not have had any incentive to carefully combine selected aspects of the cited documents as proposed by the instant rejection.

Thus, the primary citation of Beach et al. is directed to plating *gravure rolls* (a type of printed plate). Thus, the primary citation is outside the electronics industry. Clearly, the skilled worker would not look to gravure rolls for materials to plate much different semiconductor wafers.

Bernards is also quite distinct and pertains to plating on printed circuit boards. As discussed in Applicants' prior responses, persons skilled in the art recognize that plating on copper on a microchip wafer is considerably more difficult, and possess unique issues, relative to plating copper on a printed circuit board. See Applicants' response filed November 2, 2002 and the references discussed therein. Indeed, prior rejections based on reasoning similar to the present rejection have been withdrawn.

The Dubin document adds little and reports a certain pulse-plating sequence. No incentive to modify the Dubin system based on the primary citation of Beach (which is specifically directed to gravure rolls) or Bernards (printed circuit boards). Nor do Beach or Bernards provide any suggestion that the reported compositions could be employed in a pulse-plating procedure.

In view thereof, withdrawal of the rejection is requested.

Claims 137-139, 141-149, 152 and 153 were rejected under 35 U.S.C. 103 over Dahms et al. (U.S. Patent 3,778,357) in view of Dubin et al. (U.S. Patent 5,972,192).

Claims 124-132, 134-136, 150-151, 154-156 and 157-159 were rejected under 35 U.S.C. 103 over Dahms et al. (U.S. Patent 3,778,357) in view of Dubin et al. (U.S. Patent 5,972,192) and further in view of Bernards et al. (U.S. Patent 5,068,013).

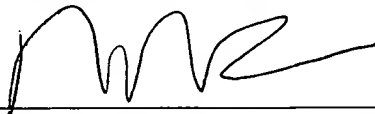
For the sake of brevity, these two Section 103 rejections are addressed in combination. Such a combined response is considered appropriate because, *inter alia*, each rejection relies on the Dahms and Dubin documents.

While Applicants fully disagree with the rejections, independent claims 124, 137, and 154 have been amended to recite subject matter of former claim 140, which former claim was not rejected over the above documents.

In view thereof, reconsideration and withdrawal of the rejections are requested.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,



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